

## PATENT SPECIFICATION

DRAWINGS ATTACHED

893,324



Date of Application and filing Complete Specification: Jan. 27, 1961.

No. 3269/61.

Application made in Switzerland on Jan. 29, 1960.

Complete Specification Published: April 4, 1962.

Index at acceptance:—Class 60, F.

International Classification:—B24c.

## COMPLETE SPECIFICATION

## Improvements in or relating to Centrifugal Blast-Type Cleaning Machines

We, GEORG FISCHER AKTIENGESELLSCHAFT a Company duly organised under the laws of Switzerland, of Schaffhausen, Switzerland, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a centrifugal blast-type cleaning machine, more particularly for cleaning strip material and comprising at least one blasting agent centrifuging device which is mounted on a rotatable or angularly adjustable platform provided in at least one of the walls of the blast housing.

It is known to use centrifugal blast-type cleaning machines for mechanical descaling, more particularly for descaling hot strip material. In known installations, the material to be cleaned passes through the centrifugal blasting machine either in a horizontal or in a vertical position, depending on whether it is desired to blast the strip on one side and then the other or on both sides simultaneously, i.e. in a single passage through the cleaning machine. In the latter case, the centrifuging wheels are arranged at both sides in the side walls of the blasting housing, and the two sides can be blasted directly one after another.

However, in order to ensure satisfactory blasting of a strip surface, it is often necessary to subject each of the strip sides to two blasts of blasting agent, the said blasts being projected one after the other or together with one another from approximately mutually opposite directions, i.e. in the one case approximately in the direction of through travel of the material being cleaned, and then approximately in the direction opposite thereto, or *vice versa*.

A known apparatus is so constructed that one centrifuging wheel is arranged at each longitudinal side of a blasting housing, offset relatively to one another as viewed in the direction of through-travel of the material being cleaned, and that, for example, two or more such units are arranged one behind the

other in order to permit each of the two strip sides to be blasted by at least two centrifuging wheels.

Since, once it is adjusted, the spacing between the centrifuging wheel and the surface of the material to be cleaned remains substantially constant for all widths of strip, the length and width of the blast pattern remains also substantially constant.

However, in order to be able to use the same apparatus for blasting alternatively relatively narrow strip materials and then wider strips in the known apparatus each of the centrifuging wheels is arranged in a rotatable platform which consists substantially of a circular disc and which is rotatable in a guide ring in the blasting housing wall, or in the cover thereof. Thus, each of the individual centrifuging wheels can be pivoted through a desired angle by rotating the corresponding rotatable platform. In this way, the position of the blast pattern produced by the centrifuging wheel and constituted by the blasting agent can be adapted to the strip width to be cleaned.

When blasting relatively wide strips, a fairly large angle of rotation is required for the rotatable platforms if the entire strip width is to be satisfactorily blasted. The large angular adjustment has a disadvantageous effect inasmuch as a fairly large proportion of the blast (chiefly the tail portion thereof) does not come into effect at all, but is projected beyond the strip edges and thus causes increased wear in the interior of the blasting housing.

According to the present invention there is provided a centrifugal blast-type cleaning machine comprising a blast housing, at least one centrifuging device for projecting blasting agent, said device being mounted on a rotatable or angularly adjustable platform provided in at least one of the walls of the blast housing, said centrifuging device including two centrifuging elements rotatably mounted in the platform and arranged with the axes thereof parallel to one another.

[P/c]

For a better understanding of the invention and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings, wherein:—

Figure 1 is a diagrammatic side view of a centrifugal blast-type cleaning machine according to an embodiment of the invention, the rotatable platform with centrifuging wheels being positioned for blasting a wide strip of material,

Figure 2 is similar to Figure 1, the rotatable platform being positioned for blasting a narrow strip of material,

Figure 3 is a diagrammatic plan view of the apparatus according to Figure 1, and

Figures 4 to 6 are diagrammatic views illustrating various positions of the rotatable platforms.

In the diagrammatic views shown in Figures 1 to 3, the widths of the strip material to be cleaned are shown, intentionally, disproportionately large in relation to the other parts of the apparatus for the sake of clarity and easier understanding.

Referring to the drawings, the embodiment comprises a centrifugal blast-type cleaning machine having a blast housing 4 provided with an inlet at one end and an outlet at the other end. Positioned at the inlet end of the housing 4 is an adjustable guiding device 2, and at the outlet end is a similar device 3, which devices serve to guide a strip 1 of material to be cleaned through the housing 4.

Provided in longitudinal walls 5 and 15 of the housing 4 are guide rings 7 and 17 which serve for the rotatable support of angularly adjustable platforms 8 and 18 respectively. The platforms 8 and 18 are offset relatively to one another, as viewed in the direction of through-travel indicated by the arrow 26, of the material to be cleaned, and each platform is provided with a centrifuging device comprising two centrifuging wheels 9,10 and 19,20 respectively, positioned with their axes 13,14 and 23,24 disposed parallel to one another, and so arranged that the wheels may rotate in planes substantially perpendicular to the planes of the platforms 8 and 18. The two centrifuging wheels, mounted on each platform 8 and 18, may be of any desired appropriate construction, and rotate in opposite directions of rotation to one another, so that the ends of two projected streams 11,12 and 21,22 impinge on one another approximately at the middle 16 of the strip 1 which is being blasted. The drawings do not show the drive means for the centrifuging wheels, or the means for feeding blasting agent to the centrifuging wheels, or the means for supporting the strip 1, since such means do not constitute part of the subject of the present invention.

The positioning of the two projected streams 11,12 and 21,22 to cover the width of the strip to be blasted is effected by rotating the platforms 8 and 18 in their annular guides 7 and 17 through a corresponding angle 25. Since the centre line of the width of the blast pattern produced by each pair of wheels is situated approximately on the axis of rotation 16 of the rotatable platforms 8 and 18, which itself corresponds approximately with the centre of the strip 1 which is being blasted, no further adjustment of the centrifuging device is necessary.

The use of the paired arrangement of two centrifuging wheels on a common rotatable platform provides the following advantages over known machines.

The construction of the machine is substantially simpler, since the two co-operating centrifuging wheels are adjusted simultaneously with one another through the same angle of rotation by rotating the rotatable platform. The number of constructional components and the overall length of the machine can be reduced.

The pivoting angles of the rotatable platforms are much smaller with this paired arrangement than in the case of known machines having one centrifuging wheel on each rotatable platform. As a result, the blasting agent impinges more advantageously on the material to be cleaned since the zone along which the material is acted upon by the blasting agent is increased in the linear direction.

The fact that a relatively large proportion of the full blast pattern impinges on the strip material being cleaned, has the result that the entire installation has a better efficiency than heretofore. The better utilisation of the jet of blasting agent for the actual blasting work causes less wear on the interior of the blast housing.

Instead of the construction in the illustrated embodiment, in which both sides of the strip may be subjected to blasts at the same time it would also be possible for rotatable platforms 8,18 each with two centrifuging wheels 9,10 and 19,20 to be arranged in the upper wall 6 of the housing 4.

**WHAT WE CLAIM IS:—**

1. A centrifugal blast-type cleaning machine comprising a blast housing, at least one centrifuging device for projecting blasting agent, said device being mounted on a rotatable or angularly adjustable platform provided in at least one of the walls of the blast housing, said centrifuging device including two centrifuging elements rotatably mounted in the platform and arranged with the axes thereof parallel to one another.
2. A centrifugal blast-type cleaning machine according to claim 1, wherein the or each rotatable platform is mounted in a circular guide on a wall of the blast housing, for rotational or angular adjustment about an axis which is disposed approximately perpendicularly to the said wall.
3. A centrifugal blast-type cleaning machine

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according to claim 1 or 2, wherin the two centrifuging elements of each device are arranged to rotate in opposite directions to one another.

5 4. A centrifugal blast-type cleaning machine substantially as hereinbefore described with reference to the accompanying drawings.  
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Leamington Spa: Printed for Her Majesty's Stationery Office, by the Courier Press.—1962.  
Published by The Patent Office, 25, Southampton Buildings, London, W.C.2, from which  
copies may be obtained.

Fig.1

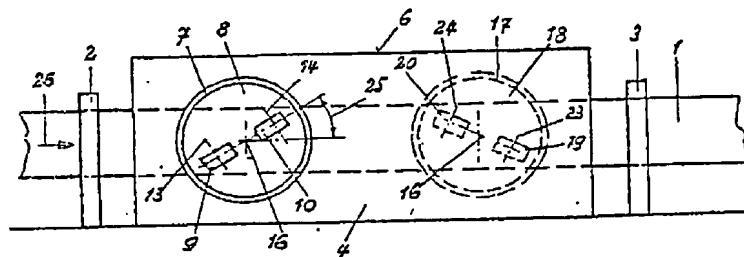


Fig.2

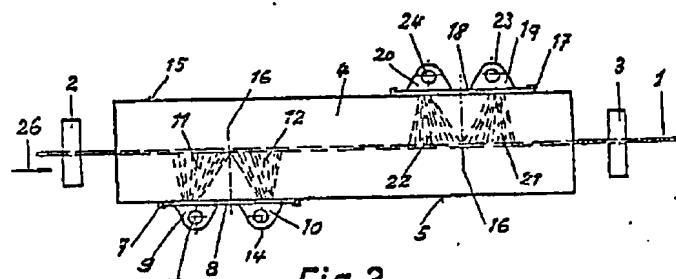
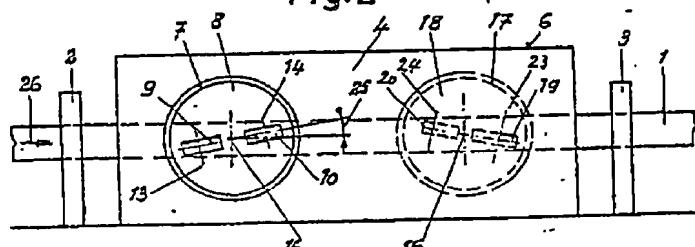


Fig.3

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2 SHEETS *This drawing is a reproduction of  
the Original on a reduced scale  
Sheets 1 & 2*

Fig. 4.

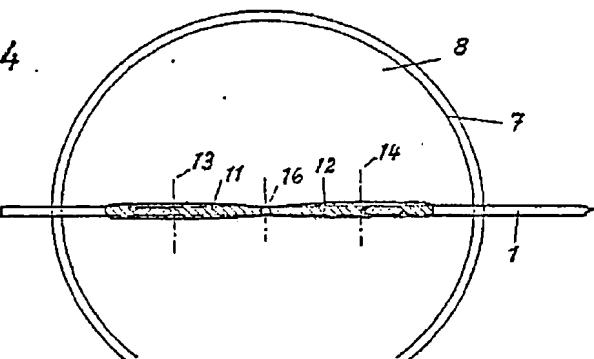
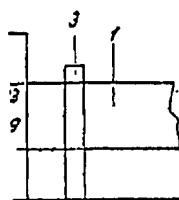


Fig. 5

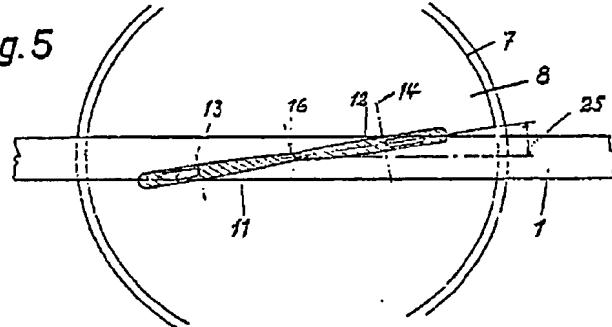
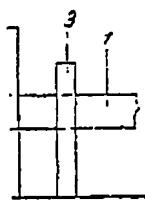
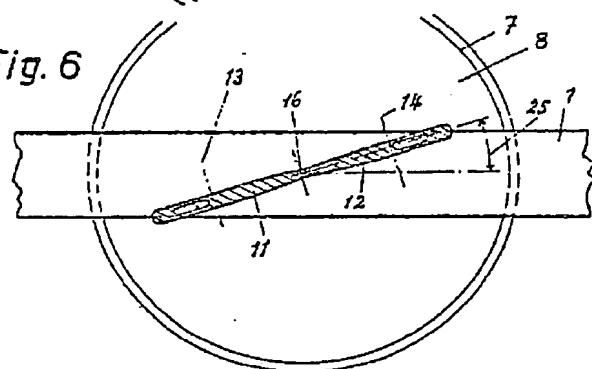


Fig. 6



693324 COMPLETE SPECIFICATION  
2 SHEETS This drawing is a reproduction of  
the Original as a reduced scale  
Sheets 1 & 2

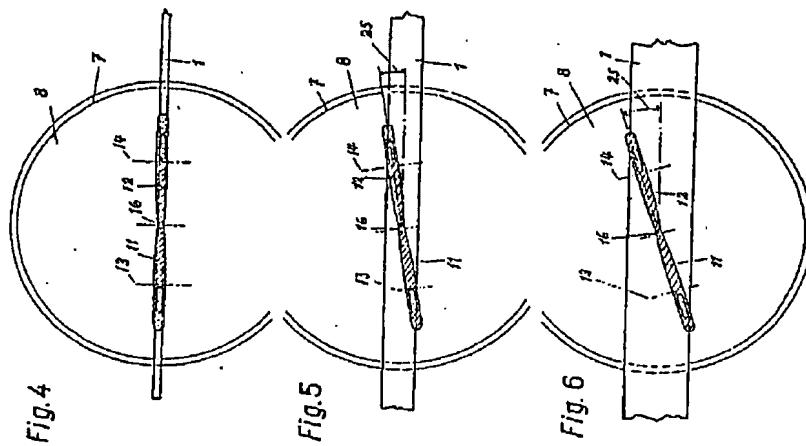


Fig.4

Fig.5

Fig.6

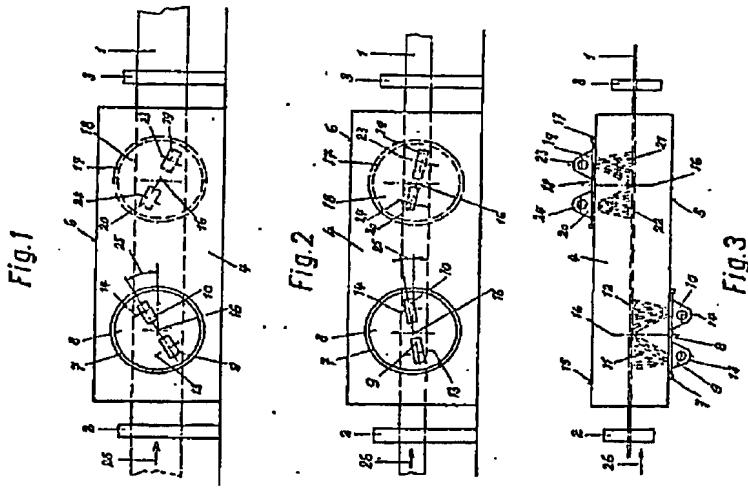


Fig.1

Fig.2

Fig.3